UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,260	09/26/2003	Fang Wang	112056-0150	8811

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/672,260	WANG ET AL.
	Examiner	Art Unit	
	Benjamin R. Bruckart	2155	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>26 September 2003</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-25</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-25</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-SB/08)
    Paper No(s)/Mail Date <u>20060505, 20050202, 20040514</u>.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

PTOL-326 (Rev. 08-06)	Office Action Summary	Part of Paper No./Mail Date 20070731

Detailed Action

Claims 1-25 are pending in this Office Action.

Information Disclosure Statement

The information disclosure statements filed 5/5/06, 2/2/05, 5/14/04 have been considered.

Formal Drawings

The formal drawings received on 9/26/03 have been entered.

Specification

The disclosure is objected to because it contains many references to related applications (see specification: page 2, line 28; page 3, line 12; page 4, line 2-3; page 8, line 4-5; page 8, lines 16-17; page 13, line 20; page 14, line 14-15; page 17, line 21-22). Cross related applications are to be referenced at the beginning in the BACKGROUND OF THE INVENTION.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

Applicant is requested to move such references to the first pages of the specification and to update said references with correct patent, publication and application numbers.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 8-12, 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by "A Highly Available Network File Server," Proceedings of the Winter 1991 USENIX Conference, Bhide et al, Jan 1991 (herein after "HA-NFS") (Applicant IDS).

Regarding claim 1, a method for failover of a first device to a second device in a storage network (HA-NFS: page 199; Introduction, 3rd paragraph), the method comprising steps of:

detecting a failure in the first device (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

initializing a second virtual port on the second device (HA-NFS: page 200; Architecture; para 1-2);

configuring the second virtual port with an identity of a first virtual port on the first device (HA-NFS: page 200, para 1-2); and

servicing a set of disks owned by the first device at the second device through the second virtual port (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 2, the method of claim 1 wherein the step of detecting a failure comprises the step of detecting a lack of a heartbeat signal from the first device at the second device (HA-NFS: page 201; para 3-4).

Regarding claim 3, the method of claim 1 wherein the step of detecting a failure comprises the step of initiating a failover command (HA-NFS: page 201; Take-over).

Regarding claim 4, the method of claim 1 wherein the step of configuring the second virtual port further comprises the steps of:

setting a node name of the second virtual port to a node name of the first virtual a port (HA-NFS: page 200; architecture; page 201; take-over); and

setting a port name of the second virtual port to a port name of the first virtual port (HA-NFS: page 200; architecture; page 201; take-over).

Regarding claim 8, the method of claim 1 further comprising the step of processing, by the second device, data access requests directed to the second virtual port (HA-NFS: page 201;

takeover; para 2).

Regarding claim 9, the method of claim 8 further comprising the step of processing, by the second device, data access requests directed to a third virtual port, the third virtual port is associated with a physical port (HA-NFS: page 201; architecture; scsi bus communication).

Regarding claim 10, the method of claim 9 wherein the second virtual port is associated with the physical port (HA-NFS: Fig. 1; secondary interface).

Regarding claim 11. The method of claim 1 wherein the second virtual port is associated with one or more virtual ports associated with a physical port (HA-NFS: secondary interface is physical).

Regarding claim 12, a storage system for use in a storage system cluster (HA-NFS: page 199; Introduction, 3rd paragraph), the storage system comprising:

a physical port adapted to communicate over a network (HA-NFS: Fig. 1);

one or more virtual ports associated with the physical port (HA-NFS: page 200; Architecture; para 1-2);

means for adapting one of the virtual ports to assume a network identity of a port of a partner storage system in the storage system cluster (HA-NFS: page 200; Architecture; para 1-2);

means for acquiring control of a set of storage devices associated with the partner storage system (HA-NFS: page 200, para 1-2); and

means for servicing data access requests directed to the assumed network identity (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 16, the storage system of claim 12 wherein the port of the second computer comprises a physical port (HA-NFS: Fig. 1; first and secondary interfaces).

Regarding claim 17, the storage system of claim 12 wherein the port of the second computer comprises a virtual port (HA-NFS: IP address, hardware address).

Regarding claim 18, a computer readable medium, including program instructions executing on a computer (HA-NFS: page 199; Introduction, 3rd paragraph), the computer readable medium including instructions for performing the steps of:

detecting, by a first device, a failure of a second device in a cluster (HA-NFS: page 201, HA-NFS Architecture, para 3-4);

initializing a first virtual port on the first device, the first virtual port being initialized with a network identity of the second device (HA-NFS: page 200; Architecture; para 1-2); and

assuming ownership, by the first device, of a set of storage devices associated with the second device (HA-NFS: architecture: page 200, para 1-2; Fig. 1).

Regarding claim 19, the computer readable medium of claim 18 wherein the step of initializing the first virtual port further comprises the steps of:

setting a node name of the first virtual port to a node name associated with a port on the second device (HA-NFS: page 200; architecture; page 201; take-over); and

setting a port name of the first virtual port to a port name associated with a port on the second device (HA-NFS: page 200; architecture; page 201; take-over).

Regarding claim 20, a storage system for use in a storage system cluster (HA-NFS: page 199; Introduction, 3rd paragraph), the storage system comprising:

a physical port adapted to communicate over a network (HA-NFS: Fig. 1);

a first virtual port associated with the physical port, the first virtual port adapted to accept data access requests directed to the storage system (HA-NFS: page 200; Architecture; para 1-2); and

a second virtual port associated with the physical port, the second virtual port adapted to assume a network identity of a failed storage system (HA-NFS: page 200; Architecture; para 1-2; take-over).

Regarding claim 21, the storage system of claim 20 wherein the second virtual port is further adapted to process data access requests directed to the network identity of the failed storage appliance (HA-NFS: page 201; Take-over).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-7, 13-15, 22-25 are rejected under 35 U.S.C. 102(b) as being anticipated by "A Highly Available Network File Server," Proceedings of the Winter 1991 USENIX Conference, Bhide et al, Jan 1991 (herein after "HA-NFS") (Applicant IDS) in view of U.S. Patent Publication No. 20040081087 by Shea.

Regarding claim 5, the HA-NFS reference teaches the method of claim 4.

The HA-NFS reference fails to teach FC network.

However, the Shea reference teaches storage network comprises a Fibre Channel (FC) network and wherein the node name comprises a FC World Wide Node Name (Shea: page 1, para 11-12) because FC is a high performance, serial interconnect standard between servers (Shea: page 1, para 6).

It would have been obvious at the time of the invention to one of ordinary skill in the art to create the system of HA-NFS to include a FC network with node and port names as taught by Shea because FC is a high performance, serial interconnect standard between servers (Shea: page

1, para 6).

Regarding claim 6, the method of claim 4 wherein the storage network comprises a Fibre
Channel (FC) network and wherein port name comprises a FC World Wide Port Name (Shea:
page 1, para 11-12).

Regarding claim 7, the method of claim 1 wherein the first device and second device are storage
systems (HA-NFS: Fig. 1).

Regarding claim 13, the storage system of claim 7 wherein the means for adapting one of the
virtual ports to assume a network identity of a port of a partner storage system in the network
further comprises:

means for setting a node name associated with the one virtual port to a node name of the
port of the partner storage system in the storage system cluster (HA-NFS: page 200; architecture;
page 201; take-over; IP address and hardware address; Shea: page 1, para 11-12); and

means for setting a port name of the one of the virtual ports to a port name of the port of
the second computer in the network (HA-NFS: page 200; architecture; page 201; take-over; IP
address and hardware address; Shea: page 1, para 11-12).

Regarding claim 14, the storage system of claim 13 wherein the node name comprises a Fibre
Channel World Wide Node Name (Shea: page 1, para 11-12).

Regarding claim 15, the storage system of claim 13 wherein the port name comprises a Fibre
Channel 2 World Wide Port Name (Shea: page 1, para 11-12).

Regarding claim 22, the storage system of claim 20 wherein the second virtual port assumes the
network identity of the failed storage system by modifying a virtual port database entry (Shea:
page 1, para 15; page 3, para 40).

Regarding claim 23, the storage system of claim 22 wherein the virtual port database entry comprises a node name field and a port name field (Shea: page 1, para 15, 11).

Regarding claim 24, the storage system of claim 23 wherein the node name field identifies a Fibre Channel (FC) World Wide Node Name associated with the second virtual port (Shea: page 1, para 14).

Regarding claim 25, the storage system of claim 23 wherein the port name field identifies a Fibre Channel (FC) World Wide Port Name associated with the second virtual port (Shea: page 1, para 11-14).
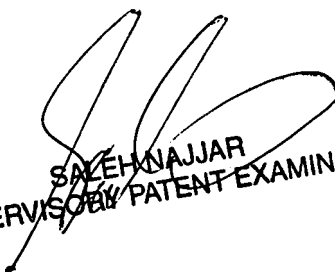
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin R Bruckart whose telephone number 571-272-3982.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on (571) 272-4006. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the examiner whose telephone number is 571-272-3982.

Benjamin R Bruckart
Examiner
Art Unit 2155

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER